

PATENT CLAIMS

- 5 1. A cascade scrubber (10) for scrubbing exhaust gas, whereby the scrubber contains several cascade tubes (12) for scrubbing gas, an inlet channel (9) for conveying the gas to the scrubber, a discharge tube (11) for venting the gas from the scrubber and a liquid tank for scrubbing the gas, **characterized in that** a gas scrubbing unit and a droplet separation unit are combined in the scrubber (10) into a compact apparatus, made
10 up of several nested chambers (20, 22, 24, 16), and that the cascade tubes (12) are placed in an annular outer chamber (20) surrounding said tubes, where the separate gas flows coming from each cascade tube are recombined.
- 15 2. A cascade scrubber according to patent claim 1, **characterized in that** a integrated gas distribution chamber (15) is placed in the upper section of the scrubber, and is connected to cascade tubes (12) in order to distribute the gas from the chamber to the cascade tubes.
- 20 3. A cascade scrubber according to patent claim 2, **characterized in that** the gas distribution chamber (15) surrounds the gas discharge tube (11).
4. A cascade scrubber according to patent claim 2, **characterized in that** a
25 bottom (28) of the gas distribution chamber (15) is inclined so that the cross-sectional area of the chamber reduces as the distance from the inlet channel (9) increases.
5. A cascade scrubber according to patent claim 5, **characterized in that**
30 the cross-sectional area of the upper section of the outer chamber (20) is smaller than that of the lower section.

6. A cascade scrubber according to patent claim 5, **characterized in that** the outer chamber (20) is connected to another annular chamber (22) with the aid of at least partially tangentially positioned partitions (23).
- 5 7. A cascade scrubber according to patent claim 7, **characterized in that** the partitions (23) divide said annular chamber (22) into segments (24), the number of which is advantageously at most half the number of the cascade tubes (12).
- 10 8. A cascade scrubber according to patent claim 7, **characterized in that** the annular chamber (22) containing the partitions (23) is positioned inside the outer chamber (20).
- 15 9. A cascade scrubber according to patent claim 7, **characterized in that** the cross-sectional area of the upper section of the annular chamber (22) is greater than that of the lower section of the chamber.
- 20 10. A cascade scrubber according to patent claim 7, **characterized in that** at least two more nested chambers (25,16) forming the droplet separation unit of the scrubber are positioned inside the chamber (22) containing tangential partitions (23).
- 25 11. A cascade scrubber according to patent claim 1, **characterized in that** the innermost chamber (16) of the droplet separation unit is equipped at the liquid surface (14) with a swirl cone (26) narrowing towards the top.
- 30 12. A cascade scrubber according to patent claim 1, **characterized in that** the innermost chamber (16) of the droplet separation unit is connected to the discharge tube (11) of pure, dry gas.
13. A cascade scrubber according to patent claim 1, **characterized in that** the equipment functions in a reduced pressure.

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14. A cascade scrubber according to patent claim 1, characterized in that the scrubber is essentially cylindrical at the gas scrubbing unit and droplet separation unit and conical at the lower section.